

CLAIMS

The invention claimed is:

1. A method for delivering web-supported articles between dies and punches of a trim press, comprising:
 - providing a treadle having an article detector;
 - while moving the web and the articles, guiding the web and the articles along the web and between a pair of the articles each provided in one of a pair of adjacent rows that extend along a travel path direction;
 - detecting location of an article in the web using the article detector; and
 - in response to detecting the location of the article, controllably moving the web to position the article between a corresponding punch and die of the trim press.
2. The method of claim 1, wherein the step of detecting location comprises optically detecting movement of an article relative to the article detector.
3. The method of claim 1, wherein the step of detecting location of an article comprises optically detecting a protuberance in the web.
4. The method of claim 3, wherein the protuberance is an article embedded in a web.

5. A method for delivering a web of material having articles formed therein between a die and punch of a trim press, the method comprising:

guiding the web between the die and the punch, the die and the punch being provided in a travel path of the web;

providing a treadle having an article detector, the treadle being configured to move relative to the die and the punch;

detecting a location of an article in the web using the article detector; and

controllably moving the web, in response to the detecting, to position the article between the punch and the die to perform severing and trimming of the article.

6. The method of claim 5, wherein the treadle is further configured to convey the web having the articles between the die and the punch.

7. The method of claim 5, wherein the guiding comprises:

guiding the web and the articles using a servo helper assembly and a servo pick assembly;

measuring an amount of feed imparted by the servo helper assembly relative to an amount of feed imparted by the servo pick assembly; and

synchronizing operation of the servo helper assembly in relation to operation of the servo pick assembly.

8. The method of claim 7, wherein the guiding further comprises:

providing a photo proximity switch on a guide member and beneath one edge of the web to detect proximity of the web in relation to the guide member; and

performing the synchronizing further to detecting the proximity of the web in relation to the guide member.

9. The method of claim 8, wherein the synchronizing is performed to produce an increased throughput rate of the web conveyed between the die and the punch of the trim press.

10. The method of claim 8, wherein delivery speed of the servo helper assembly relative to the servo pick assembly is controllably regulated by a control system in response to a signal detected by the photo proximity switch.

11. The method of claim 10, wherein the control system is configured to move a follower wheel away from a drive wheel for a predetermined amount of time, while the trim press is in an open state and not performing a trimming operation, to enable realignment of the web, the follower wheel and the drive wheel being included in the servo pick assembly.

12. The method of claim 11, wherein the realignment of the web comprises adjusting spacing of the web between the servo helper assembly and the servo pick assembly prior to performing the trimming operation.

13. The method of claim 5, wherein the detecting comprises optically detecting movement of an article relative to the article detector.

14. The method of claim 5, wherein the detecting comprises optically detecting a protuberance in the web.

15. The method of claim 14, wherein the protuberance is an article embedded in a web.

16. A method for delivering a web of material having articles formed therein between a die and punch of a trim press, the method comprising:

guiding the web between the die and the punch;

providing and configuring a treadle to move relative to the die and the punch;

detecting a location of an article in the web; and

controllably moving the web, in response to the detecting, to position the article between the punch and the die to perform severing and trimming of the article.

17. The method of claim 16, further comprising providing the die and the punch in a travel path of the web.

18. The method of claim 16, wherein the providing comprises providing the treadle having an article detector, and the detecting step comprises detecting a location of the article using the article detector.

19. The method of claim 18, wherein controllably moving the web comprises synchronizing movement of the web to produce an increased throughput rate of the web conveyed between the die and the punch of the trim press.

20. The method of claim 19, wherein movement of the web is controllably regulated by a control system in response to a signal detected by the article detector.

21. The method of claim 20, wherein the control system is configured to move a follower wheel away from a drive wheel for a predetermined amount of time, while the trim press is in an open state and not performing a trimming operation, to enable realignment of the web, and the follower wheel and the drive wheel are configured in a closed state to support movement of the web.